

ATK Aerospace business initiatives update - Productivity

In January's issue of the ATK Aerospace News, renewed business initiatives for the ATK Aerospace Group were introduced. In upcoming issues of this newsletter, we plan to provide employees with updates on these initiatives.

The article below is an update from Dan Eskelsen on the Productivity initiative. The Productivity initiative is looking at our current approaches to productivity improvement including Propulsion Enterprise System (PES) and Lean Manufacturing. It will study these and other methods and establish the best approach for new programs and set appropriate improvement goals. Next issue, look for an update from Bob Wardle on the Focused Technology initiative.

The "Lean" journey - the beginnings

By Dan Eskelsen and Kelly Franklin

This article is the first of a three-part series on "lean manufacturing." It covers the beginnings of implementing lean manufacturing within ATK Composites.

A [team](#) of Utah Composites Center employees supporting the MK-125 program recognized the customer had a need - reduced program cost. Without any formal training, but with a great deal of enthusiasm, the team used "Lean" philosophies to reduce the MK-125 work cell floor space by 48 percent, reduce technician travel distance by 86 percent and ultimately reduce overall labor by 13.5 percent.

How was this achieved? Specifically, the MK-125 pioneers moved the work to a smaller location and localized the tool and material storage area (stores), reducing travel distance. The production process was mapped to identify and eliminate wasted activities. Concise work instructions were provided to standardize work. The team also implemented the Utah Composites Center's first "Kanban system" by communicating the need for materials through the use of visual communications. These actions were key to meeting the customer's financial requirements. The team has a new goal for 2003 - an additional 30 percent reduction in labor.

Travis Campbell, ATK Composites president, recognized the value of Lean and developed a formal implementation plan. Dan Eskelsen, director of Quality Assurance, Safety, Security and Environmental Compliance, was challenged to assess available resources, provide training, convert processes, implement Lean culture and ultimately demonstrate financial results.

Eskelsen evaluated various Lean initiatives, organizations and available training material, and contracted with Simpler Consulting from Ottumwa, Iowa, to provide training and coaching. Simpler's selection was based on the hands-on application of Lean by Senseis (teachers) previously involved in industry as a general manager, facility manager or operations manager with a minimum of 100 Lean events prior to consulting. In addition, these teachers have successfully applied Lean tools to both manufacturing processes and administrative areas in other companies that resulted in improvements to the bottom line.

With guidance from Simpler Consulting, ATK Composites has embarked on a Lean Journey with an emphasis on conversion through involvement.

The premise of Lean is to identify waste and remove it from any process. The key principles are:

Value - What a customer is willing to pay for

Flow - Continuous value stream

Pull - Responding to a downstream demand

Continuous Improvement - A culture that supports performance

Lean events, called Rapid Improvement Events (RIE), are a seven-week process. It consists of three weeks of preparation, the week of the main event and three weeks of follow-up. These RIEs have been performed at three sites - the Utah Composites Center, Southern Composites Center and Space Structures. The week-long events included a half day of training in the basics of Lean and value stream analysis, followed by an intense, focused activity where teams analyzed a process, used specific tools to identify waste, established a plan to remove that waste and selected metrics for expected improvements. Preparation required before a RIE includes selecting the team and team leader and assessing measurements that demonstrate the financial gains.

The structured RIE events focused on Value Stream Mapping (VSM) and analyzing the value stream for waste. An Ideal State VSM was developed, keeping Lean principles in mind, which led to the generation of a Future State VSM, depicting how close to the Ideal State the process can get within six to 12 months.

What resulted from the RIEs was an action plan that each team could immediately implement. Immediate actions included removing waste such as injuries, defects, inventory, wait time or unnecessary motion. Tools for identifying this waste are *takt* time (available time/customer demand), time observation, spaghetti diagrams (travel), flow diagrams, standard work sheets, production control boards and standard work in process.

"These activities have identified tremendous opportunities for removal of waste, and the action plans developed drive toward eliminating the waste and improving the bottom line," said Eskelsen. "Making the conversion from understanding Lean to implementation with results truly is a journey."



Utah Composites Center MK-125 team. Front (l. to r.): Kalene Bradley, Megan Stulp, Rob Robinson, Casey Morgan, and Kelly Franklin. Back (l. to r.): Beth Toivonen, Scott Curdie and Phil Prince.